

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
11 November 2004 (11.11.2004)

PCT

(10) International Publication Number
WO 2004/096136 A3

(51) International Patent Classification⁷: **C07H 21/04**,
C12N 15/00

(21) International Application Number:
PCT/US2004/012510

(22) International Filing Date: 23 April 2004 (23.04.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/465,841 25 April 2003 (25.04.2003) US

(71) Applicant (for all designated States except US): **CHIRON CORPORATION** [US/US]; 4560 Horton Street, Emeryville, CA 94608 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **O'HAGAN, Derek** [US/US]; c/o Chiron Corporation, 4560 Horton Street, Emeryville, CA 94608 (US). **HOUGHTON, Michael** [GB/US]; c/o Chiron Corporation, 4560 Horton Street, Emeryville, CA 94608 (US). **SINGH, Manmohan** [IN/US]; c/o Chiron Corporation, 4560 Horton Street, Emeryville, CA 94608 (US).

(74) Agent: **HARBIN, Alisa**; Chiron Corporation, Intellectual Property - R440, P.O. Box 8097, Emeryville, CA 94662-8097 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
2 June 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: COMPOSITIONS COMPRISING CATIONIC MICROPARTICLES AND HCV E1E2 DNA AND METHODS OF USE THEREOF

(57) Abstract: Immunogenic HCV E1E2₈₀₉ DNA compositions and methods of using the same are described. The compositions comprise HCV E1E2₈₀₉ DNA adsorbed to cationic microparticles, such as poly(lactide-co-glycolide) (PLG) microparticles.

WO 2004/096136 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/12510

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C07H 21/04; C12N 15/00

US CL : 536/23.72; 435/320.1

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 536/23.72, 24.1; 435/320.1; 424/184.1, 192.1, 450, 228.1, 278.1, 283.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
West, PubMed

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 01/47551 A (CHIRON CORPORATION) 05 July 2001 (05.07.2001), document.	1-29
Y	WO 03/002065 A (CHIRON CORPORATION) 09 January 2003 (09.01.2003), document, esp., Fig. 2, and claims.	1-29
Y	US 6,210,663 B (ERTL, Hildegund) 03 April 2001 (03.04.2001), abstract, columns 2-3, 10-14.	12-28
A	US 2003/0072764 A (O'HAGAN, Derek) 17 April 2003 (17.04.2003), reference.	1-29
A	US 6,086,901 A (O'HAGAN et al) 11 July 2000 (11.07.2000), reference.	17-20, 22-26
A	WO 02/26209 A (CHIRON CORPORATION) 04 April 2002 (04.04.2002), reference	3-6, 9-11, 22-27
A	US 6,207,646 B (KRIEG et al) 27 March 2001 (27.03.2001), reference.	21, 27

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

01 April 2005 (01.04.2005)

Date of mailing of the international search report

13 APR 2005

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Zachariah Lucas

Telephone No. 571-272-1600